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General Conclusions:

25X1 25X1 1. From examination of Izvestiya, it seems the Soviets are making a concerted effort to "catch up" in chemistry. Whereas the periodical used to be almost entirely concerned with organic chemistry, it now includes a much wider variety of material.

25X1 25X1 2. It is clear that there is concentrated effort on certain fields, steroids and polymerization for example. Some of the articles describe work done in the US long ago. There is a continuing tendency toward the development of chemical specialists with a long record of intensive work in one field. V V Korshak and his work in polymerization is a case in point. He has written some 58 papers in the field. The chances of finding advanced polymerization work by someone outside his group appear slim. I N Nazarov has written about 80 papers on acetylene.

25X1 3. there are not enough competent chemists to "go around" in the USSR. Their best chemists are as good as those in the US, but their second line appears significantly less numerous and probably less capable. The Soviets, however, appear bent on rectifying this situation. In general, it can be said that as of today (mid-1954) the scientific appetite in US chemistry is more varied than in the USSR, and that our chemical scientific base "across the board" seems more competent.

4. It is also likely that the prolonged concentration of certain scientists and groups in the USSR with certain fields, as reflected in published work, is the result of Soviet planning. They seem to encourage such efforts, as part of

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their deliberate, over-all planned program of scientific advance. An illustration might be the groups working very thoroughly through whole sections of the periodic tables. Care must be exercised, however, to exclude the possibility that Soviet publication policy or the deliberate encouragement of certain groups does not hide a greater diversity of chemical interests and research in different fields (less specialization) than appears from such publications as Izvestiya.

25X1 5. impressed by the increased number of theoretical papers in Izvestiya, and the fact these were usually placed at the beginning of the periodical. There has been a great increase, at least since 1947, in what might be termed mathematical-physical or physical-chemical papers. In the past, this type of paper was published in the Soviet Journal of General Chemistry, but they are now overflowing into Izvestiya. 25X1 this is a sign of increased maturity in Soviet chemistry. In particular, the Institute of Chemical Physics (USSR Academy of Sciences) in Moscow has contributed to this trend.

25X1 6. the fact that these more theoretical papers (and some are highly theoretical; eg, concerning electron processes with no attendant experimental work) are at the beginning of the publication, indicates the Soviets wish to emphasize their theoretical capabilities. It is 25X1 a reflection of the inferiority complex they have had with respect to world chemistry in general. They are in effect indirectly saying: see, we can do first-class theoretical work too; we are as good or better than you [the West].

7. This broad-range, theoretical work reflects a number of fields of chemistry in which the Soviets are much interested:

a. absorption of gases on active surfaces;

b. flame propagation (after-burning, jets); combustion studies;

c. catalysis (reformation of molecules, petroleum);

d. phase-rule study of silicates (conducted mostly at the Hydrochemical Institute in Moscow);

e. solution chemistry;

f. metallurgical chemistry (including related nuclear work).

25X1 8. It is clear that an enormous amount of chemical research and related work is 25X1 being conducted in Moscow. approximately 90 per cent of published 25X1 work emanates from this area. Moscow must therefore also be the center of Soviet chemical training. There is no comparable concentration in the US, and France (Paris) seems 25X1 the closest and perhaps sole national equivalent. In examination of Izvestiya, only single papers from Leningrad and Kiev. Kazan appears to be the second most active chemistry area in the USSR. It is 25X1 a heavy contributor to Soviet chemical publications. Interestingly, it is only from Kazan that papers by chemists bearing a clearly Asiatic name. 25X1 The Soviet Asiatics appear to be gradually producing scientists, but mainly at the eastern institutes rather than Moscow. G Schrader was the only German or 25X1 ex-German author in the issues of Izvestiya

25X1 9. Summarizing, Soviet organic chemistry is still quite a 25X1 way behind the US. In both theoretical and experimental work, they often ignore work in the West. But there also seems to be a tremendous effort in the USSR 25X1 to raise the general level of chemistry.

10. Perhaps it is an indirect reflection of this effort that the quality of the paper used for Soviet chemical journals seems to be greatly improved. The typography is more aesthetically pleasing and undoubtedly represents an improvement in printing techniques as compared with some years ago.

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Specific Observations:

25X1 11. three volumes of Izvestiya (Division of Chemical Science) for the period July-December, 1953. Of the 67 articles published in this period, 60 investigations were carried out in Moscow institutions, three in Kazan, and one each in Tashkent, Irkutsk, Radiev, and Szeged (Hungary). The latter article is of interest in that it was written by G Fodor (see below, Uspekhi Khimii). Dr Fodor also contributes to French and UK journals.

12. There are a great many articles dealing with chemical physics and physical chemistry. A ready supply of radioactive isotopes must be available as quite a few research investigations dealt with these materials.

25X1 13. four volumes of Uspekhi (#7, 8 and 10 of 1953, and #2 of 1954). These numbers contained 18 articles on various and interesting chemical subjects. Nine of these articles were written by scientists in Moscow. Two were written by authors in Sverdlovsk, and one each emanated from Chernovtsi, Leningrad, Kiev, and Erevan (Armenia). Two of the articles are Russian translations of US articles 25X1 which originally appeared in Chemical Reviews. One article is written by G Fodor of Szeged, Hungary.

14. Some interesting aspects of some of the articles are as follows:

a. Models of Consecutive Reactions: This article is suggested as a teaching aid for advanced schools. It is of interest that the bibliography appended to the article consisted wholly of Soviet authors; there were no non-Soviet references.

b. There were two articles concerned with insecticidal organophosphorus and organofluorine compounds. One was by a Soviet author, M N Mel'nikov (#3, 25X1 1953). The other was a paper by G Schrader, the German chemist who originally developed these so-called "nerve gases". it was a Russian translation of a German article.

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c. 25X1 There appeared an article concerning the 50th anniversary of the death of J W Gibbs, the US scientist and Yale University professor, who did a great deal to advance the science of thermodynamics and statistical mechanics.

15. It is of interest also that through this journal, Uspekhi Khimii, Soviet chemists get review articles in greater numbers than is provided by a review article journal in the US.

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